

Seismometer Installation

Charging the Batteries

The seismometers use a 12 volt marine battery, used because it is able to supply power continuously and can be drained completely—therefore, the batteries may need to be charged using a charger.

1. Plug the charger into the wall and make sure it is set to STD, and make sure that it is set to “fast charging” (the picture of the rabbit)



2. Once the charger is plugged in, you can connect the clamps to the battery that you wish to charge. Connect the Positive (+) knob on the battery to the Positive (+) clamp from the charger, and connect the negative (-) knob on the battery to the negative (-) clamp from the charger. The positive is RED the negative is BLACK.



3. When the battery is fully charged, the bottom light will be lit up



This will light up when fully charged!!

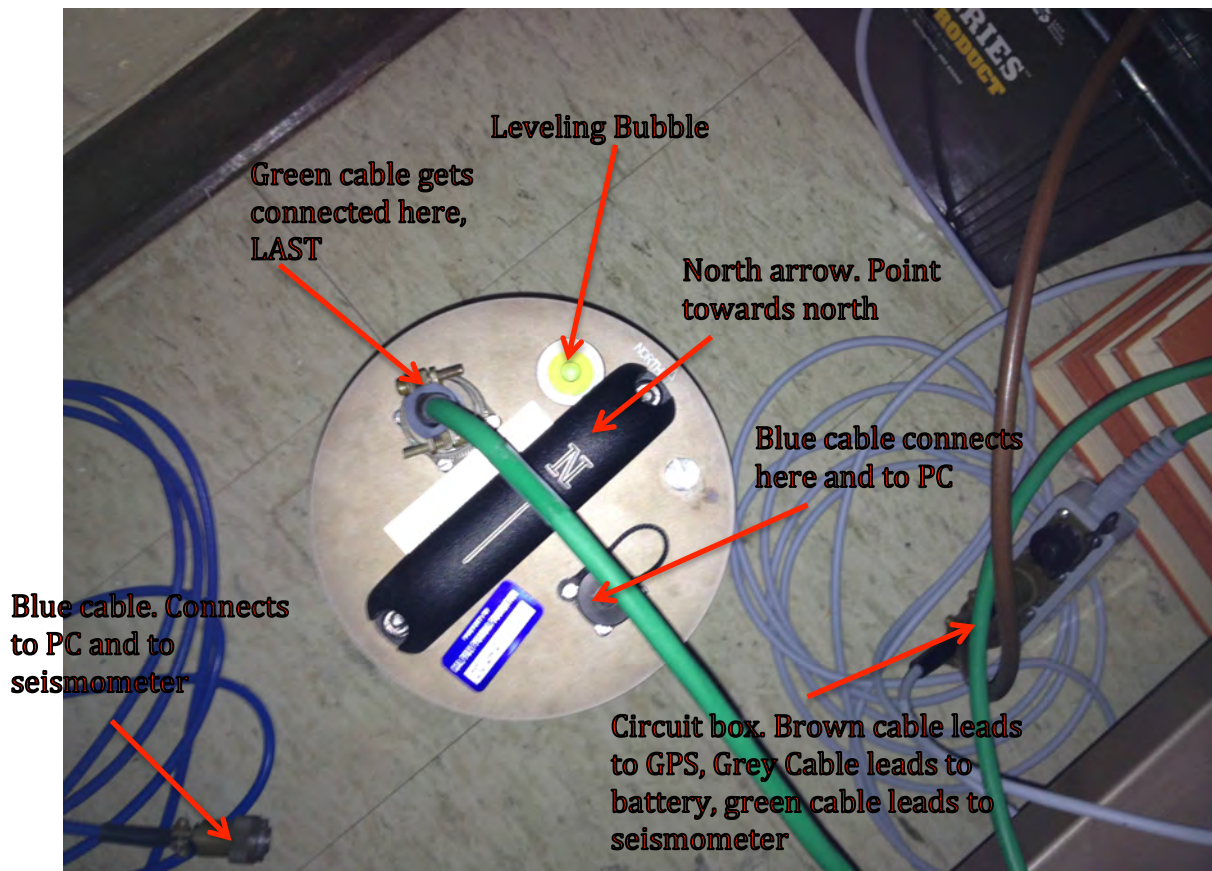
A few things to note: When working, the charger will start to make a sound (like a fan). Also, you should charge the batteries in a well-ventilated room!!! Battery releases some gas that may be hazardous-Do not charge in an enclosed area.

Setting up the seismometer

Once you have a charged battery, and have found a location for the placement, the seismometer is ready for installation.

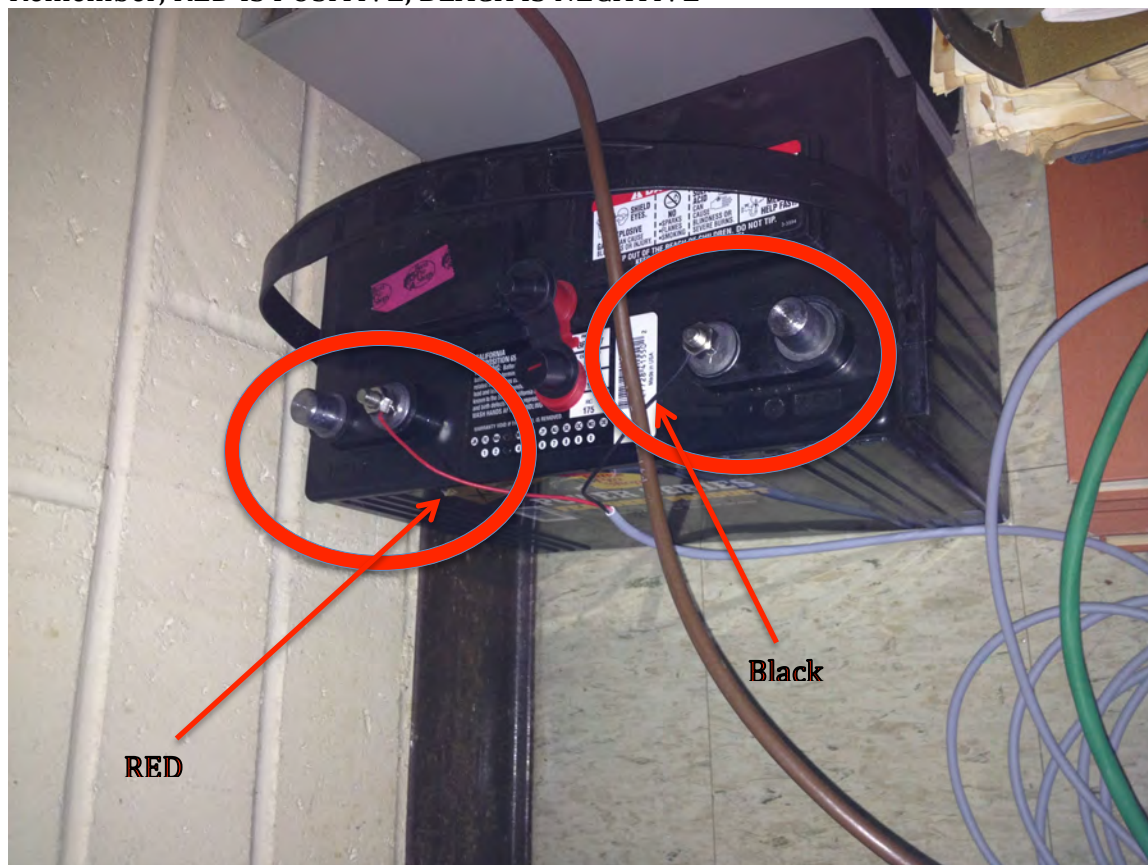
First, the seismometer needs to be pointing towards North. Find North with a compass and orient the arrow on the top of the seismometer towards North. Once it is pointing North, you must level the seismometer. There is a green level bubble on the top of the device. Level it with the copper knobs at the base of the seismometer.





1. First, connect the brown cable to the circuit box. The brown cable is connected to the GPS. The circuit box has a connection labeled "GPS"
2. The blue cable gets connected to the PC. Plug one end into the PC and the other end gets plugged into the breakout box.
3. The grey cable is for the battery connection. Connect the 10-pin plug on the breakout box and connect the wires at the other end to the battery.

Remember, RED IS POSITIVE, BLACK IS NEGATIVE

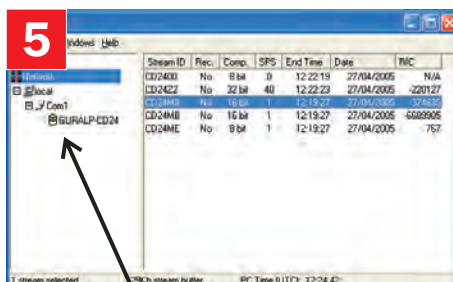


4. And finally, connect the green cable from the circuit box to the seismometer.
DO THIS STEP LAST!!!

Setup with the PC

Once all of the cables are connected, the PC program will tell you if the seismometer is connected properly and is ready to run.

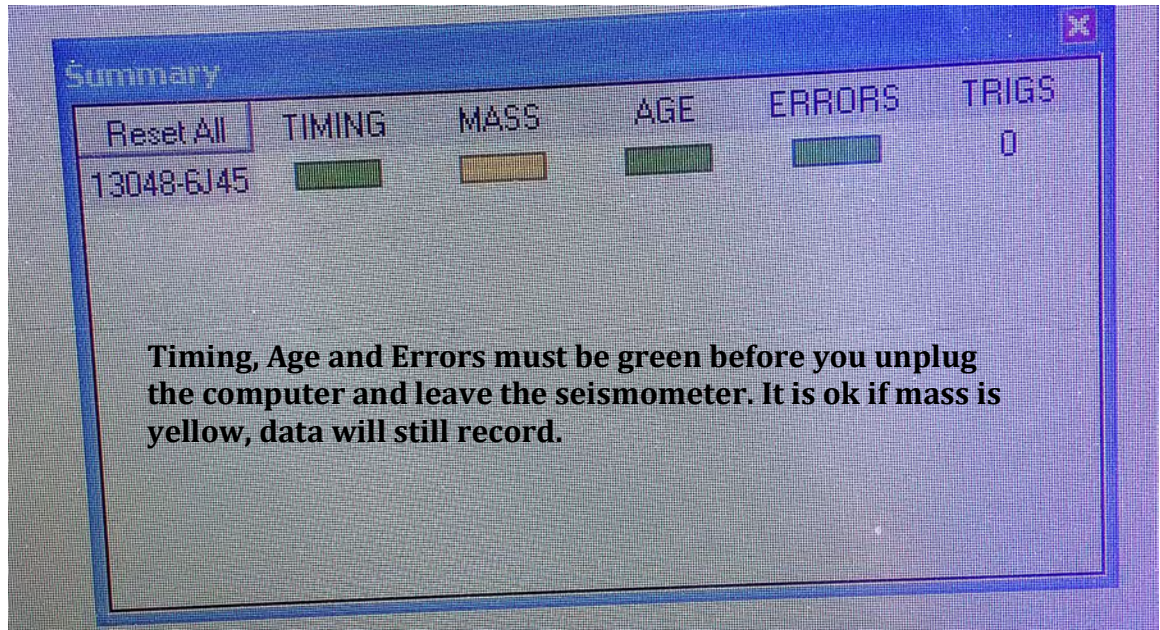
1. Run the Scream! Software on the computer's desktop
2. Data streams will show in the main window.



This icon will turn green when ready. It will show in the left hand side of the screen and will have the serial number below it

3. In the display screen there will be various channels. The Z, N, and E channels and the satellite channels.

4. Double click on the "00" channel this is the GPS channel. Make sure it has found at least 5 satellites (and lat/long). Always wait until you get this information. It may take up to 30 minutes.
5. Click on file—click setup and make sure the device is set to "Baud Rate 19200"
6. Right click on the icon—click control—click on the "data flow" tab and set the device to "duplicate" and "reuse" this will assure the data flow is continuous.
7. Click on "window"—click "summary" and you will get a summary window displaying timing, mass, age and error.



8. Mass means that the seismometer is level and should be green (but is ok if it is yellow...NOT red). Age means that the data is now being sent and should be green. Note that time is in GMT time.
9. Make note of lat/long from the "00" channel window
10. Once everything is green and all satellites have been found, the seismometer will record data. It is ok to unplug the blue cable.

Before you leave the site

1. Make sure you WRITE DOWN the serial number!



Retrieving the data

1. Data box should be connected to the seismometer
2. Connect the blue cable from the laptop to the breaker box
3. Connect the seismometer to the disk
4. Connect the wire from disk to PC (do not connect the disk to the PC via USB at this point! The disk is only using the PC for power at this point...use the cable that looks like a camera connector at the end)
5. Click and open SCREAM software
6. Right click on the icon and open terminal
7. Typing "flush" into terminal will give all the data since the last time you flushed
8. You should get "transfer finished" when done
9. Closes the window
10. Typing "flush all" flushes all the data on the seismometer (LOTS of data)

Transferring data from disk to laptop

1. Connect HD cable to computer this time, not to the seismometer
2. GCF extract
3. Disk is in drop down menu (more recent at the bottom)
4. Click Scan
5. This will give you channels, click select all
6. Target Directory under documents, click Guralp, click all data files, click file or make new one
7. Output SAC (Intel), 1 day duration, 24 hours
8. Extract
9. Folder for every channel